

CLAIMS

1. An aluminum-based target consisting of a plurality of aluminum alloy target members,
characterized in that the aluminum-based target has a joint in which
5 the aluminum alloy target members have been joined with a friction stir welding method.
2. The aluminum-based target according to claim 1, wherein the joint includes dispersed precipitates with diameters of 10 μm or smaller.
- 10 3. The aluminum-based target according to claim 1 or 2, wherein the aluminum alloy comprises at least 0.5-7.0 at% one or more elements selected from the group consisting of nickel, cobalt and iron, and the balance aluminum.
- 15 4. The aluminum-based target according to claim 3, wherein the aluminum alloy further includes 0.1 to 3.0 at% carbon.
5. The aluminum-based target according to claim 3 or 4, wherein the
20 aluminum alloy further includes 0.5 to 2.0 at% silicon.
6. The aluminum-based target according to any one of claims 3 to 5, wherein the aluminum alloy further includes 0.1 to 3.0 at% neodymium.
- 25 7. An aluminum-based target made by joining a plurality of aluminum alloy target members with each other,
characterized in that a joint has blow holes with diameters of 500 μm or smaller in an amount of 0.01-0.1 hole/ cm^2 .

8. An aluminum-based target made through joining a plurality of aluminum alloy target members with each other,
characterized in that a joint does not have blow holes with diameters
5 exceeding 500 μm .
9. The aluminum-based target according to claim 7 or 8, wherein the joint contains dispersed precipitates with diameters of 10 μm or smaller.
- 10 10. The aluminum-based target according to any one of claims 7 to 9, wherein the aluminum alloy comprises at least 0.5-7.0 at% one or more elements selected from the group consisting of nickel, cobalt and iron, and the balance aluminum.
- 15 11. The aluminum-based target according to any one of claims 7 to 10, wherein the joint is formed with a friction stir welding method.
12. A method for manufacturing an aluminum-based target characterized in that the method comprises the steps of:
20 abutting end faces of one side of the aluminum alloy target members with each other; and
arranging a probe for friction stir welding at an abutted part to cause relative circulation movement between the probe and the abutted part, and producing a plastic flow in the abutted part by a generated frictional heat, and
25 joining the aluminum alloy target members.

13. The method for manufacturing an aluminum-based target according to claim 12, wherein the aluminum alloy target members are joined from both sides of the front side and back side of the members.
- 5 14. The method for manufacturing an aluminum-based target according to claim 12 or 13, wherein adjacent abutted parts are joined in the same moving direction of a probe from a start point to an end point.
- 10 15. The method for manufacturing an aluminum-based target according to claim 12 or 13, wherein the adjacent abutted parts are joined in the opposite moving direction of a probe from the other, from a start point to an end point.
- 15 16. The method for manufacturing an aluminum-based target according to any one of claims 12 to 15, wherein a traveling distance per revolution of a probe is 0.5 to 1.4 mm.
17. The method for manufacturing an aluminum-based target according to any one of claims 12 to 16, wherein the relative density of the aluminum alloy target member is 95% or higher.
- 20 18. An aluminum-based target obtained through any of the manufacturing methods, which methods according to claims 12 to 17.